

## At Issue: Is Natural Selection Rendering Schizophrenia Less Severe?

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It is unlikely that a collection of articles on recovery in schizophrenia would have been published in Kraepelin's time. For him the hallmark of the disorder was deterioration and incurability for all but a few. Yet, as Bellack<sup>1</sup> notes in this issue, several relatively recent outcome studies show recoveries in schizophrenia that would not have been expected a century ago. While we clearly applaud this development, we should perhaps reflect on the differences between schizophrenia then and now that make recovery a viable and sometimes attainable goal.

Has schizophrenia become a milder disorder over the 20th and 21st centuries? This question has been asked many times over the past 50 years, and most of the answers have been in the affirmative. This literature can be proxied by 2 clinician-teachers who have recorded what they witnessed during their careers.

John Romano<sup>2</sup> wrote as follows in 1977:

I believe that schizophrenic illnesses today are milder and that one rarely sees patients experiencing an acute unremitting catastrophic course. Hebephrenic and catatonic subtypes occur less often, but some of this behavior may be included in the designated subtypes of acute and chronic undifferentiated schizophrenia. One sees more patients with phasic psychotic episodes with greater affective components. These vary in duration with improvement in many instances to good social competence.

John Ellard<sup>3</sup> wrote as follows in 1987:

I first encountered psychiatric patients en masse in 1945 at what was then the 114th Australian General Hospital, the principal Australian military psychiatric base hospital in the second half of the Second World War. Most of them were young men .... The most striking phenomenon of all was acute catatonia, which usually persisted until removed by ECT but occasionally waxed and waned for no discoverable reason. If it returned while the patient was walking about the hospital grounds, it was simplest to hoist him on to a bicycle and wheel him back to his ward. It was common enough: in my memory I can see 20 or more young men immobile in one courtyard. After their morning insulin treatment they could be disposed as fancy determined, and on that particular occasion someone had placed them in pairs, shaping up to each other as if boxing. Thus they

stayed for hours, each so encapsulated as to be without the slightest evidence of awareness of his threatening and proximate companion. Nor did they seem to become fatigued, which puzzles me still.... I had no difficulty in deciding why psychiatrists had been called alienists.... The patients had a great impact on me. I felt that I was encountering beings resembling us and living among us, but preoccupied and haunted by some other universe in which they more properly belonged. The remarkable thing is that during the 40 years of my subsequent observation the difference between us has become much less marked. Whereas then my patient and I struggled to communicate at all, now we are likely to finish up discussing the dopamine hypothesis.

Do we as clinicians working currently with patients with schizophrenia see anything close to this? I certainly do not. Do we as clinical researchers see anything close to this from the epidemiological perspective? Those who have described, counted, and compared cases over sequential periods of time have reported reductions in schizophrenia incidence,<sup>4</sup> reductions in more disabling, nonparanoid subtypes of schizophrenia such as the catatonic, hebephrenic, and simple,<sup>5–7</sup> and reductions in the overall severity of schizophrenia.<sup>8,9</sup> Some have cautioned that these changes may be illusory and accounted for by variations in diagnostic criteria,<sup>10</sup> in level of sample urbanicity and immigration,<sup>11</sup> and/or type of treatment,<sup>7</sup> although many of these changes in schizophrenia occurred prior to the initiation of neuroleptic medications.<sup>5,12</sup> It may be said that no one has been able to disprove the null hypothesis—ie, that change in schizophrenia has not occurred—and the preliminary data recorded over the last century makes change a compelling question.

If the amelioration of schizophrenia over time is real, the immediate issue is how it happens. One change mechanism that is seldom considered is natural selection. If such a process were active, we would expect to see a marked reduction in the reproductive capacity of those afflicted and to see selection against the most debilitating forms of the disorder. The former has been documented many times,<sup>13–16</sup> and the latter appears to match the longitudinal data.

Natural selection may not be considered more frequently for two reasons. First, it would strongly suggest that schizophrenia, at least in its current prevalence, is a recent development. Torrey<sup>17</sup> has suggested such

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a possibility and marshals compelling evidence that dementia praecox was not particularly visible until the 18th and 19th centuries. The second reason for overlooking natural selection may be that we are accustomed to assuming the process requires long periods of time, certainly more than 2 or 3 centuries. This also may be an inaccurate assumption insofar as examples of rapid evolution have become more common among evolutionary biologists,<sup>18</sup> especially in situations where high phenotypic diversity and strong selective pressures coexist. What could be more phenotypically diverse than the schizophrenia described by Kraepelin and his forebears, and what could be more strongly selective than a reproductive capacity that varies inversely with phenotypic severity?

Torrey's<sup>17</sup> suggestion is a cogent one. Its consideration may open thinking to new pathophysiological possibilities with schizophrenia, as well as answer in part the question of why recovery appears easier to achieve 110 years after Kraepelin. Other changes over the same time period have also made a difference, such as less institutionalization, more prudent pharmacotherapy, better evidence-driven psychosocial interventions, and liberal family engagement in the culture of treatment and advocacy. All of these developments, along with a milder phenotype, raise hope, and hope is a powerful mediating variable of recovery.

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